January 2002
Updated and Errata Pages
for the
Implementation Guide for Immunization Data Transactions using Version 2.3.1 of the Health Level Seven (HL7) Standard Protocol

Implementation Guide Version 2.0
June 1999

These errata pages were distributed to CIRSET on July 3, 2001, and accepted at its August 2001 meeting. Within a few days after acceptance, additional questions about the OMB revisions to standard race codes caused us to revisit the issue. Then, while exploring the possibility of obtaining LOINC codes for some new messaging capabilities, we learned that the codes we had been given previously had not been properly recorded by the coding authorities, and were therefore not valid codes. This required additional communications with the LOINC® committee and resulted in a new formal request for codes on October 5, 2001. The codes were subsequently obtained and all the related questions and issues resolved on December 18, 2001.

These pages incorporate all of the changes and new codes discussed. We have maintained the same page numbers as the pages in the original Guide so that users can print them and replace the originals.

VXR Example (Response to VXQ Example #1)

The example below reflects a vaccination record return as might be expected by a public health agency reporting from an immunization registry in one state to another state registry.

MSH|^~\&||MA0000||GA0000|199705221610||VXR^V03^V03|19970522MA53|T|2.3.1|||AL<CR>
MSA|AA|19970522GA40|<CR>
QRD|199705221605|R|I|19970522GA05|||25^RD|^KENNEDY^JOHN^FITZGERALD^JR|VXI|^SIIS<CR>
QRF|MA0000||||256946789~19900607~MA~MA99999999~88888888~KENNEDY^JACQUELINE^LEE~BOUVIER~898666725~KENNEDY^JOHN^FITZGERALD~822546618<CR>
PID|||1234^^^^SR^~1234-12^^^^LR^~3872^^^^MR~221345671^^^^SS^~430078856^^^^MA^||KENNEDY^JOHN^FITZGERALD^JR^^^L|BOUVIER^^^^^^M|19900607|M|KENNEDY^BABY BOY^^^^^^B|~~W^WHITE^NY8 RACE CODES^W~~ 2106-3^WHITE^HL70005|123 MAIN ST^APT3B^LEXINGTON^MA^00210^^M^MSA CODE^MA034~345 ELM ST^^BOSTON^MA^00314^^BDL~^^^^^^BR^^MA002| |(617)555-1212 ^PRN^PH^^^617^5551212^^||EN^ENGLISH^HL70296^^^|||||||~~WN^NOT HISPANIC^LOCAL CODE SET~~ N~~H~~^NOT ~~OF~~ HISPANIC ~~ORIGIN~~ OR LATINO^HL70189^2186-5^NOT HISPANIC OR LATINO^US|CHILDREN'S HOSPITAL<CR>
PD1|||CHILDREN'S HOSPITAL^L^1234^^^^XX~LEXINGTON CLINIC^^1234A^^^^FI |12345^CARE^PRIMARY^^^DR^MD^^^L^^^DN|||||||03^REMINDER/RECALL - NO CALLS^HL70215|Y|A|19900607<CR>
NK1|1|KENNEDY^JACQUELINE^LEE|MTH^MOTHER^HL70063|||||||||||||||||||||||||||||||898666725^^^^SS<CR>
NK1|2|KENNEDY^JOHN^FITZGERALD|FTH^FATHER^HL70063|||||||||||||||||||||||||||||||822546618^^^^SS<CR>
PV1||R|||||||||||||||||V02^19900607~H02^19900607<CR>
RXA|0|1|19900607|19900607|08^HEPB-PEDIATRIC/ADOLESCENT^CVX^90744^HEPB-PEDATRIC/ADOLESCENT^C4|.5|ML^^ISO+||03^HISTORICAL INFORMATION - FROM PARENT'S WRITTEN RECORD^NIP0001|^JONES^LISA|^^^CHILDREN'S HOSPITAL||5|MCG^^ISO+|MRK12345|199206|MSD^MERCK^MVX<CR>
RXA|0|0|19901207|19901207|20^DTAP^CVX|.5|ML^^ISO+|||1234567891^O'BRIAN^ROBERT^A^^DR^MD|^^^CHILD HEALTHCARE CLINIC^^^^^101 MAIN STREET^^BOSTON^MA||||W22532806| 19901230|PMC^ PASTEUR MERIEUX CONNAUGHT^MVX|00^PARENTAL DECISION^NIP002||RE<CR>
OBX|1|TS|29768-9^DATE VACCINE INFORMATION STATEMENT PUBLISHED^LN||19900605||||||F<CR>
OBX|2|TS|29769-7^DATE VACCINE INFORMATION STATEMENT PRESENTED^LN||19901207||||||F<CR>
RXA|0|1|19910907|19910907|50^DTAP-HIB^CVX^90721^DTAP-HIB^C4|.5|ML^^ISO+||00^NEW IMMUNIZATION RECORD^NIP001|1234567890^SMITH^SALLY^S^^^^^^^^^VEI~1234567891^O'BRIAN^ROBERT^A^^DR^MD^^^^^^OEI|^^^CHILD HEALTHCARE CLINIC^^^^^101 MAIN STREET^^BOSTON^MA ||||W46932777| 199208|PMC^PASTEUR MERIEUX CONNAUGHT^MVX|||CP|A|19910907120030<CR>
RXR|IM^INTRAMUSCULAR^HL70162|LA^LEFT ARM^HL70163<CR>
OBX|1|NM|60000-7^DTAP DOSE COUNT IN COMBINATION VACCINE^LN||4|||||F<CR>
OBX|2|NM|60002-3^HIB DOSE COUNT IN COMBINATION VACCINE^LN||4|||||F<CR>
RXA|0|1|19910907|19910907|03^MMR^CVX|.5|ML^^ISO+|||1234567890^SMITH^SALLY^S^^^^^^^^^VEI~1234567891^O'BRIAN^ROBERT^A^^DR^MD^^^^^^OEI|^^^CHILD HEALTHCARE CLINIC^^^^^101 MAIN STREET^^BOSTON^MA||||W2348796456|19920731|MSD^MERCK^MVX<CR>
RXR|SC^SUBCUTANEOUS^HL70162|LA^LEFT ARM^HL70163<CR>
RXA|0|5|19950520|19950520|20^DTAP^CVX|.5|ML^^ISO+|||1234567891^O'BRIAN^ROBERT^A^^DR^MD|^^^CHILD HEALTHCARE CLINIC^^^^^101 MAIN STREET^^BOSTON^MA||||W22532806|19950705|PMC^PASTEUR MERIEUX CONNAUGHT^MVX<CR>
RXR|IM^INTRAMUSCULAR^HL70162|LA^LEFT ARM^HL70163<CR>
RXA|0|2|19950520|19950520|03^MMR^CVX|.5|ML^^ISO+|||1234567891^O'BRIAN^ROBERT^A^^DR^MD|^^^CHILD HEALTHCARE CLINIC^^^^^101 MAIN STREET^^BOSTON^MA||||W2341234567|19950630|MSD^ MERCK^MVX<CR>
RXR|SC^SUBCUTANEOUS^HL70162|LA^LEFT ARM^HL70163<CR>
OBX||ST|60011-4^VACCINATION ADVERSE EVENT^LN||ANAPHYLAXIS|||||F<CR>
NTE|||VAERS FORM SUBMITTED BY PROVIDER<CR>
RXA|0|1|19960415|19960415|96^TST-PPD INTRADERMAL^CVX|5|TU<CR>
OBX||NM|1648-5^TUBERCULOSIS REACTION WHEAL 3D POST 5 TU ID^LN||1|MM||N|||F|||19960418<CR>

4.14.4 **Unsolicited Vaccination Record Update (VXU)**

Definition: When a provider using one system wishes to update the patient's vaccination record being held in another system, he will transmit an unsolicited update of the record (using a V04 trigger event).

An unsolicited update will follow this format:

VXU	Unsolicited Vaccination Update	HL7 Chapter
MSH	Message Header Segment	2
PID	Patient Identification Segment	3
[PD1]	Additional Demographics	3
[{NK1}]	Next of Kin/Associated Parties	3
[PV1	Patient Visit	3
[PV2]]	Patient Visit Additional Information	3
[{IN1	Insurance	6
[IN2]	Insurance Additional Information	6
[IN3]	Insurance Additional Information-Cert.	6
}]		
[{ [ORC]	Common Order Segment	4
RXA	Pharmacy Administration	4
[RXR]	Pharmacy Route	4
[{ OBX	Observation/Result	7
[{NTE}]	Notes (Regarding Immunization)2	
}]		
}]		

VXU Example #1 (Message with only required fields valued)

The example below of an unsolicited update of a vaccination record demonstrates a message with only the minimum number of fields valued. This message conforms to all the NIP required core data elements (see Appendix 3 for the complete core data set) and the fields required by HL7 for correct messaging. **In the body of this *Implementation Guide* these required items are represented in boldface type.** Some software vendors have expressed an interest in attaching a "patch" to an existing system, possibly a billing system that does not otherwise use HL7, that would automatically generate this message from data in an existing application.

MSH|^~\&|||||||VXU^V04|19970522MA53|P|2.3.1<CR>
PID|||221345671^^^^SS||KENNEDY^JOHN^FITZGERALD^JR|BOUVIER^^^^^^M|19900607|M|||^^^^MA^^^BDL<CR>
NK1|1|KENNEDY^JACQUELINE^LEE|MTH^MOTHER^HL70063<CR>
RXA|0|1|19900607|19900607|08^HEPB-PEDIATRIC/ADOLESCENT^CVX|.5|ML^^ISO+|||||||
MRK12345||MSD^ MERCK^ MVX<CR>

VXU Example #2 (Unsolicited update showing use of optional segments)

The example below of an unsolicited update of a vaccination record demonstrates possible uses for some of the optional segments in the message. For the purposes of this document, the optional segments in the messages (PD1, PV1, PV2, IN1, IN2, IN3, RXR, OBX, and NTE) are described only to the extent that segments and fields are either required or have been identified by the workgroup as needed for these messages.

MSH|^~\&||MA0000||GA0000|19970901||VXU^V04|19970522MA53|T|2.3.1|||AL<CR>
PID|||1234^^^^SR^~1234-12^^^^LR^~3872^^^^MR~221345671^^^^SS^~430078856^^^^MA^
||KENNEDY^JOHN^FITZGERALD^JR^^^L|BOUVIER^^^^^^M|19900607|M|KENNEDY^BABY BOY^^^^^^
B|~~W^WHITE^NY8 RACE CODES^W~~ 2106-3^WHITE^HL70005|123 MAIN ST^APT 3B^LEXINGTON^MA
^00210^^M^MSA CODE^MA034~345 ELM ST^^BOSTON^MA^00314^^BDL~^^^^^^BR^^MA002| |(617)
555-1212^PRN^PH^^^617^5551212^^||EN^ENGLISH^HL70296^^^|||||||~~WN^NOT HISPANIC^LOCAL
CODE SET~~ N~~H~~^NOT ~~OF~~ HISPANIC ~~ORIGIN~~ OR LATINO^HL70189^2186-5^NOT HISPANIC OR
LATINO^US|CHILDREN'S HOSPITAL<CR>
PD1|||CHILDREN'S HOSPITAL^^1234^^^^XX~LEXINGTON CLINIC^^1234A^^^^FI|12345^CARE^
PRIMARY^^^DR^MD^^^L^^^DN|||||||03^REMINDER/RECALL - NO CALLS^HL70215|Y<CR>
NK1|1|KENNEDY^JACQUELINE^LEE|MTH^MOTHER^HL70063|||||||||||||||||||||||||||||||898666725^^^^SS<CR>
NK1|2|KENNEDY^JOHN^FITZGERALD|FTH^FATHER^HL70063|||||||||||||||||||||||||||||||822546618^^^^SS<CR>
PV1||R|||||||||||||||A|||V02^19900607~H02^19900607<CR>
RXA|0|1|19900607|19900607|08^HEPB-PEDIATRIC/ADOLESCENT^CVX^90744^HEPB-
PEDATRIC/ADOLESCENT^C4|.5|ML^^ISO+||03^HISTORICAL INFORMATION - FROM PARENT'S
WRITTEN RECORD^NIP0001|^JONES^LISA|^^^CHILDREN'S HOSPITAL||5|MCG^^ISO+|MRK12345|
199206|MSD^MERCK^MVX<CR>
RXA|0|4|19910907|19910907|50^DTAP-HIB^CVX^90721^DTAP-HIB^C4|.5|ML^^ISO+||00^NEW
IMMUNIZATION RECORD^NIP0001|1234567890^SMITH^SALLY^S^^^^^^^^VEI~1234567891
^O'BRIAN^ROBERT^A^^DR^MD^^^^^^OEI|^^^CHILD HEALTHCARE CLINIC^^^^^101 MAIN STREET^^
BOSTON^MA||||W46932777|199208|PMC^PASTEUR MERIEUX CONNAUGHT^MVX|||CP|A|
19910907120030<CR>
RXR|IM^INTRAMUSCULAR^HL70162|LA^LEFT ARM^HL70163<CR>
RXA|0|1|19910907|19910907|03^MMR^CVX|.5|ML^^ISO+|||1234567890^SMITH^SALLY^S^^^^^^^^VEI
~1234567891^O'BRIAN^ROBERT^A^^DR^MD^^^^^^OEI|^^^CHILD HEALTHCARE CLINIC^^^^^101
MAIN STREET^^BOSTON^MA||||W2348796456|19920731|MSD^MERCK^MVX<CR>
RXR|SC^SUBCUTANEOUS^HL70162|LA^LEFT ARM^HL70163<CR>
RXA|0|5|19950520|19950520|20^DTAP^CVX|.5|ML^^ISO+|||1234567891^O'BRIAN^ROBERT^A^^DR|^^
^CHILD HEALTHCARE CLINIC^^^^^101 MAIN STREET^^BOSTON^MA||||W22532806|19950705|PMC^
PASTEUR MERIEUX CONNAUGHT^MVX<CR>
RXR|IM^INTRAMUSCULAR^HL70162|LA^LEFT ARM^HL70163<CR>
NTE|||PATIENT DEVELOPED HIGH FEVER APPROX 3 HRS AFTER VACCINE INJECTION<CR>
RXA|0|2|19950520|19950520|03^MMR^CVX|.5|ML^^ISO+|||1234567891^O'BRIAN^ROBERT^A^^DR|^^^
CHILD HEALTHCARE CLINIC^^^^^101 MAIN STREET^^BOSTON^MA||||W2341234567|19950630|
MSD^MERCK^MVX<CR>
RXR|SC^SUBCUTANEOUS^HL70162|LA^LEFT ARM^HL70163<CR>

SEGMENT DEFINITIONS

2.24 MESSAGE CONTROL SEGMENTS

These segments are necessary to support the functionality described in the Control/Query chapter of the HL7 standard.

2.24.1 Message Header (MSH) Segment

Used to define the intent, source, destination, and some specifics of the syntax of a message.

MSH Attributes

SEQ	LEN	DT	R/O	RP#	TBL#	ITEM#	ELEMENT NAME
1	**1**	**ST**	**R**			**00001**	**Field separator**
2	**4**	**ST**	**R**			**00002**	**Encoding characters**
3	180	HD	O			00003	Sending application
4	180	HD	O			00004	Sending facility
5	180	HD	O			00005	Receiving application
6	180	HD	O			00006	Receiving facility
7	26	TS	O			00007	Date/Time of message
8	40	ST	O			00008	Security
9	**7**	**CM**	**R**		**0076** **0003**	**00009**	**Message type**
10	**20**	**ST**	**R**			**00010**	**Message control ID**
11	**3**	**PT**	**R**			**00011**	**Processing ID**
12	**60**	**VID**	**R**		**0104**	**00012**	**Version ID**
13	15	NM	O			00013	Sequence number
14	180	ST	O			00014	Continuation pointer
15	2	ID	O		0155	00015	Accept acknowledgment type
16	2	ID	O		0155	00016	Application acknowledgment type
17	2	ID	O			00017	Country code
18	10	ID	O	Y	0211	00692	Character set
19	60	CE	O			00693	Principal language of message
20	20	ID	O		0356	01317	Alternate character set handling scheme

2.24.1.0 MSH field definitions

MSH 2.24.1.1 Field separator (ST-1, Required) 00001

Definition: The character to be used as the field separator for the rest of the message.

The recommended value is |, as shown in our examples.

MSH 2.24.1.2 Encoding characters (ST-4, Required) 00002

Definition: Four characters in the following order: the component separator, repetition separator, escape character, and subcomponent separator.

The recommended values are ^~\&, as shown in our examples.

MSH 2.24.1.3 Sending application (HD-180, Optional) 00003

Definition: Uniquely identifies the sending application among all other applications within the network enterprise. The network enterprise consists of all the applications that participate in the exchange

of HL7 messages within the enterprise. Immunization programs may use this field to identify the software name and version. We do not define it further in this document.

Data type HD: Components: <namespace ID (IS)>^ <universal ID (ST)>^<universal ID type (ID)>

Components are defined as follows:

(1) Namespace ID (IS). Refer to *User-defined Table 0300 - Namespace ID* for suggested values.

(2) Universal ID (ST). The UID is a string formatted according to the scheme defined by the third component, UID type. The UID is intended to be unique over time within the UID type. It is rigorously defined by the scheme constructing it. The UID must follow the syntactic rules of the particular scheme defined in the third component.

(3) Universal ID type (ID). Governs the interpretation of the second component of the HD. If it is a known UID, refer to *HL7 Table 0301 - Universal ID type* for valid values.

In our examples, we have not valued this field.

MSH 2.24.1.4 Sending facility (HD-180, Optional) 00004

Definition: This field contains the address of one of several occurrences of the same application within the sending system. Site-defined. Immunization programs may use this field to identify the state system sending the query. The address consists of the two-letter postal code plus digits. The digits of the state central registry will be all 0's; e.g., GA0000. Facilities and registries within the state will be assigned numeric codes by the state; e.g., GA0322.

Data type HD: Components: <namespace ID (IS)>^ <universal ID (ST)>^<universal ID type (ID)>

Components are defined as follows:

(1) Namespace ID (IS). Refer to *User-defined Table 0300 - Namespace ID* for suggested values.

(4) Universal ID (ST). The UID is a string formatted according to the scheme defined by the third component, UID type. The UID is intended to be unique over time within the UID type. It is rigorously defined by the scheme constructing it. The UID must follow the syntactic rules of the particular scheme defined in the third component.

(5) Universal ID type (ID). Governs the interpretation of the second component of the HD. If it is a known UID, refer to *HL7 Table 0301 - Universal ID type* for valid values.

In our query examples, we show the Georgia state registry as the sending system.

MSH 2.24.1.5 Receiving application (HD-180, Optional) 00005

Definition: Uniquely identifies the receiving application among all other applications with the network enterprise. The network enterprise consists of all the applications that participate in the exchange of HL7 messages. Immunization programs may use this field to identify the software name and version. We do not define it further in this document.

Data type HD: Components: <namespace ID (IS)>^ <universal ID (ST)>^<universal ID type (ID)>

Components are defined as follows:

(1) Namespace ID (IS). Refer to *User-defined Table 0300 - Namespace ID* for suggested values.

(6) Universal ID (ST). The UID is a string formatted according to the scheme defined by the third component, UID type. The UID is intended to be unique over time within the UID type. It is rigorously defined by the scheme constructing it. The UID must follow the syntactic rules of the particular scheme defined in the third component.

(7) Universal ID type (ID). Governs the interpretation of the second component of the HD. If it is a known UID, refer to *HL7 Table 0301 - Universal ID type* for valid values.

In our examples, we have not valued this field.

MSH 2.24.1.6 Receiving facility (HD-180, Optional) 00006

Definition: This field identifies the receiving application among multiple identical applications running on behalf of different organizations. Site-defined. Immunization programs may use this to identify the state system receiving the query. The address consists of the two-letter postal code plus digits. The digits of the state central registry will be all 0's; e.g., MA0000. Facilities and registries within the state will be assigned numeric codes by the state; e.g., MA0322.

Data type HD: Components: <namespace ID (IS)>^ <universal ID (ST)>^<universal ID type (ID)>

3.3 PATIENT ADMINISTRATION MESSAGE SEGMENTS

3.3.2 Patient Identification (PID) Segment

Used by all applications as the primary means of communicating patient identification information. This segment contains permanent patient identifying and demographic information that, for the most part, is not likely to change frequently.

PID Attributes

SEQ	LEN	DT	R/O	RP/#	TBL#	ITEM#	ELEMENT NAME
1	4	SI	O			00104	Set ID – PID
2	20	CX	B			00105	Patient ID
3	**20**	**CX**	**R**	**Y**		**00106**	**Patient identifier list**
4	20	CX	B	Y		00107	Alternate patient ID - PID
5	**48**	**XPN**	**R**	**Y**		**00108**	**Patient name**
6	**48**	**XPN**	**O**	**Y**		**00109**	**Mother's maiden name**
7	**26**	**TS**	**O**			**00110**	**Date/time of birth**
8	**1**	**IS**	**O**		**0001**	**00111**	**Sex**
9	48	XPN	O	Y		00112	Patient alias
10	80	CE	O	Y	0005	00113	Race
11	**106**	**XAD**	**O**	**Y**		**00114**	**Patient address**
12	4	IS	B		0289	00115	County code
13	40	XTN	O	Y		00116	Phone number - home
14	40	XTN	O	Y		00117	Phone number - business
15	60	CE	O		0296	00118	Primary language
16	80	CE	O		0002	00119	Marital status
17	80	CE	O		0006	00120	Religion
18	20	CX	O			00121	Patient account number
19	16	ST	B			00122	SSN number - patient
20	25	DLN	O			00123	Driver's license number - patient
21	20	CX	O	Y		00124	Mother's identifier
22	80	CE	O	Y	0189	00125	Ethnic group
23	60	ST	O			00126	Birth place
24	1	ID	O		0136	00127	Multiple birth indicator
25	2	NM	O			00128	Birth order
26	80	CE	O	Y	0171	00129	Citizenship
27	60	CE	O		0172	00130	Veterans military status
28	80	CE	O		0212	00739	Nationality
29	26	TS	O			00740	Patient death date and time
30	1	ID	O		0136	00741	Patient death indicator

3.3.2.0 PID field definitions

Usage notes: There are several PID fields that we do not anticipate that immunization registries will need to use, so we do not provide definitions for them here. These are PID-2,4,12,16-20,26-28. Several of these fields refer to types of patient identifiers. Previous versions of these guidelines based on HL7 Version 2.3 recommended that immunization registries use *PID-4 - Alternate patient ID-PID* to record the patient's birth certificate or birth registration number assigned by the state at birth. In addition, it was formerly recommended that the patient's Social Security number be recorded in *PID-19 - SSN - patient*. With Version 2.3.1, **HL7 recommends using *PID-3-patient identifier list* for all patient identifiers.** NIP encourages immunization registries to conform to the HL7 Version 2.3.1 recommendation by repeating PID-3 to report these identifiers along with the appropriate identifier type code (*User-defined Table 0203 - Identifier type*).

PID 3.3.2.10 Race (CE-80, Optional, Repeating) 00113

Definition: This field identifies the patient's race. Refer to *User-defined Table 0005 - Race* for suggested values. This field repeats, so several races may be reported for one patient. HL7's Version 2.3.1 did not suggest values for this table, so the original Implementation Guide provided a table based on commonly used categories for data on race at that time, stating that "values compliant with the OMB directive will be added when available."

The U.S. Office of Management and Budget (OMB) published a notice of revised standards for the classification of Federal data on race and ethnicity in the Federal Register on October 30, 1997 (hereinafter referenced as the OMB Notice). It directed the Bureau of the Census and other Federal programs to adopt the standards as soon as possible for data collections. The OMB Notice did not assign codes, but did establish categories of race and ethnicity with some differences from the previous standard. It established five minimum categories for data on race and two categories for data on ethnicity, but encouraged collection of greater detail. It also established two acceptable methods of reporting—one maintaining race and ethnicity as separate categories and one that combined both of these (called the combined format). It stated that more detailed collections should be organized in a way that allowed aggregation into these minimum categories for data on race and ethnicity.

In response to OMB's revised standard, representatives from several Federal agencies, including CDC, developed a code set that met the terms of the OMB Notice. HL7 also responded to this new need by recommending values for its User-defined Table 0005 – Race that were consistent with the OMB Notice and that adopted the codes for the minimum categories that were developed by the Federal agencies. The entire hierarchical list of numeric race and ethnicity categories is available at http://www.cdc.gov/od/hissb/docs/Race-EthnicityCodeSet.pdf.

CIRSET members voted to change the recommendation in the Guide for race coding to these newer codes to be consistent with Federal data collections, such as Census data, as well as new HL7 implementations. The HL7 standard states that the second triplet of the CE data type for race (alternate identifier, alternate text, and name of alternate coding system) is reserved for governmentally-assigned codes. If codes from the more detailed hierarchy described above are needed, they may be represented in the second triplet of the CD data type in this field.

The differences between the NIP-assigned race codes in the original Guide and the numeric race codes from HL7 Version 2.4's *User-defined Table 0005 – Race* are in the categories of Asian and Pacific Islander. Immunization registries that collect race data will transition to the newer HL7 codes in the first triplet of the race field's CE data type as quickly as possible. Immunization registries that have implemented messaging based on the original User-defined Table 0005 – Race may continue to provide this information in its original form during the transition by repeating the field and valuing the first triplet of the CE data in the repeated field with the original codes. Because the two affected categories will not map directly to the old categories, registries may map historical data collected before the availability of the revised OMB categories in these two categories to a code value of "U" representing "Unknown."

The CE data type transmits codes and the text associated with the code. This type has six components arranged in two groups as follows:

<identifier (ST)>^<text (ST)>^<name of coding system (ST)>^
<alternate identifier (ST)>^<alternate text (ST)> ^<name of alternate coding system (ST)>

CE data type components are defined as follows:

(1) Identifier (ST). The code that uniquely identifies the item being referenced by the <text>. Different coding schemes will have different elements here.
(2) Text (ST). Name or description of the item in question.
(3) Name of coding system (ST). Identifies the coding system used. The combination of the identifier and the name of the coding system components will be a unique code for a data item.
(4-6) Three components analogous to 1-3 for the alternate or local coding system.

In our VXU #2 and VXR examples, we show that the patient's race is white.

PID 3.3.2.11 Patient address (XAD-106, Optional, Repeating) 00114

Definition: This field lists the mailing address of the patient. Multiple addresses for the same person may be sent in the following sequence: the primary mailing address must be sent first in the sequence; if the mailing address is not sent, then a repeat delimiter must be sent in the first sequence. If there is only one repetition of this field and an address type is not given, it is assumed to be the primary mailing address.

> XAD data type components: <street address (ST)>^ <other designation (ST)>^<city (ST)>^<state or province (ST)>^<zip or postal code (ST)>^<country (ID)>^<address type (ID)>^<other geographic designation (ST)>^<county/parish code (IS)>^<census tract (IS)>^<address representation code (ID)>
>
> For valid values in these components, refer to *User-defined Table 0212 - Nationality*for country codes, HL7 *Table 0190 - Address type* for address type codes, *User-defined Table 0289 - County/parish* for county/parish codes, *User-defined Table 0288 - Census Tract* for census tract codes, and *HL7 Table 4000 - Name/address representation* for address representation codes.

We recommend using the USPS format for recording street address, other designation, city, state, and zip or postal code (available at <www.usps.gov>). When sending multiple addresses, the appropriate type code must be indicated. The address order is by local convention, however, we recommend that immunization registries send in the following order: 1) primary (current) mailing address (required to be first); 2) **place of birth (may be used to indicate facility address and county; see *PID-23-Birth place* for indicating the name of the birth facility)**; and 3) residence at birth (registries may choose to indicate county and state alone). Note that county should not be duplicated in the "other geographic designation" component. Items to include here might be metropolitan statistical area (MSA) codes (available at <www.census.gov>) or school district number, for example.

CX data type components: <ID (ST)>^<check digit (ST)>^<code identifying the check digit scheme employed (ID)>^<assigning authority (HD)>^<identifier type code (IS)>^<assigning facility (HD)>

Components are defined as follows:

(1) ID number (ST)

(2) Check digit (ST) (The check digit used in this data type is not an add-on produced by the message processor. It is the check digit that is part of the identifying number used in the sending application. If the sending application does not include a self-generated check digit in the identifying number, this component should be valued null.)

(3) Code identifying check digit scheme employed (ID). Refer to *HL7 Table 0061 - Check digit scheme* for valid values.

(4) Assigning authority (HD)
Subcomponents of (4): <application identifier 1 (ID)> & <application identifier 2 (ID)> & <application identifier 3 (ID)> & <application identifier 4 (ID)> & <application identifier 5 (ID)> & <application identifier 6 (ID)>

(5) Identifier type code (IS)
A code corresponding to the type of identifier. This code may be used as a qualifier to the "Assigning authority" component. Refer to *User-defined Table 0203 - Identifier type* for suggested values.

(6) Assigning facility (HD)
Definition: The place or location identifier where the identifier was first assigned to the patient–part of the history of the identifier.
Subcomponents of (6): <namespace ID (IS)>&<universal ID (ST)>&<universal ID type (ID)>

In our examples, we have not valued this field. However, immunization registries may value this field with any number of identifiers for the patient's mother using type codes as described in PID-3 above and shown in *User-defined Table 0203 - Identifier type*.

PID 3.3.2.22 Ethnic group (CE-80, Optional, Repeating) 00125

Definition: This field further defines patient ancestry. Suggested values are listed in *User-defined Table 0189 - Ethnic group.* This field repeats, so several ethnic groups may be reported for one patient. HL7's Version 2.3.1 did not suggest values for this table, so the original Implementation Guide provided temporary codes, stating that these were to be used in the second triplet [of the CE data type] until OMB-compliant codes are available." According to HL7's Version 2.4, "the second triplet of the CE data type for Ethnic group (alternate identifier, alternate text, and name of alternate coding system) is reserved for governmentally assigned codes. In the US, a current use is to report ethnicity in line with US federal standards for Hispanic origin."

In the *User-defined Table 0189 – Ethnic group*, this Guide provides the ethnicity codes that were added to HL7's Version 2.4, along with the relevant numeric ethnicity codes to be used in the second triplet from the hierarchical list of numeric race and ethnicity categories that is available at http://www.cdc.gov/od/hissb/docs/Race-EthnicityCodeSet.pdf. (See discussion of these codes at PID-10.) Immunization registries that have already implemented the older codes for collections of ethnic data should transition to the HL7 codes provided in *User-defined Table 0189 – Ethnic group* in the first triplet of the CE data type and should include the numeric ethnic group codes in the second triplet. Because the affected categories will map directly to the old categories, registries should be able to map historical data collected before HL7's Version 2.4 to the newer method with a minimum of effort.

All new registry implementers of the HL7 messages that collect ethnic group data should use the HL7 codes provided in *User-defined Table 0189 – Ethnic group* in the first triplet of the CE data type and the numeric ethnic group codes in the second triplet.

The CE data type transmits codes and the text associated with the code. This type has six components arranged in two groups as follows:
<identifier (ST)>^<text (ST)>^<name of coding system (ST)>^
<alternate identifier (ST)>^<alternate text (ST)> ^<name of al ternate coding system (ST)>

CE data type components are defined as follows:

(1) Identifier (ST). The code that uniquely identifies the item being referenced by the <text>. Different coding schemes will have different elements here.
(2) Text (ST). Name or description of the item in question.
(3) Name of coding system (ST). Identifies the coding system used. The combination of the identifier and the name of the coding system components will be a unique code for a data item.
(4-6) Three components analogous to 1-3 for the alternate or local coding system.

In our VXU #2 and VXR examples, we show the patient's ethnicity as "not Hispanic or Latino" using both the HL7 table code and the numeric US code with the same meaning.

PID 3.3.2.23 Birth place (ST-60, Optional) 00126

Definition: This field gives the location of the patient's birth. Immunization registries may use this field for the facility where the patient was born. This information may be used in conjunction with *PID-11-Patient address* with address type as "location of birthing facility."

3.3.9 **Patient Additional Demographic (PD1) Segment**

The patient additional demographic segment contains demographic information that is likely to change about the patient.

PD1 Attributes

SEQ	LEN	DT	R/O	RP/#	TBL#	ITEM#	ELEMENT NAME
1	2	IS	O	Y	0223	00755	Living dependency
2	2	IS	O		0220	00742	Living arrangement
3	90	XON	O	Y		00756	Patient primary facility
4	90	XCN	O	Y		00757	Patient primary care provider name & ID number
5	2	IS	O		0231	00745	Student indicator
6	2	IS	O		0295	00753	Handicap
7	2	IS	O		0315	00759	Living will
8	2	IS	O		0316	00760	Organ donor
9	1	ID	O		0136	00761	Separate bill
10	20	CX	O	Y		00762	Duplicate patient
11	80	CE	O		0215	00763	Publicity code
12	1	ID	O		0136	00744	Protection indicator
13	8	DT	O			01566	Protection indicator effective date
14	250	XON	O	Y		01567	Place of worship
15	250	CE	O	Y		01548	Advance directive code
16	1	IS	O		0441	01569	Immunization registry status
17	8	DT	O			01570	Immunization registry status effective date
18	8	DT	O			01571	Publicity code effective date

3.3.9.0 PD1 field definitions

Usage notes: We do not anticipate that immunization registries will use several PD1 fields (PD1-1,2,5-10, 14-15; therefore, we do not provide definitions for them here. PD1-13, 16, 17, and 18 were requested for immunization registries and added to HL7's Version 2.4. Immunization registries may use the fields as described in their Version 2.3.1 implementations, and the fields will be consistent with future versions of the standard.

PD1 3.3.9.3 Patient primary facility (XON-90, Optional, Repeating) 00756

Definition: This field contains the name and identifier that specifies the primary care facility for the patient. Multiple names and identifiers are allowed for the same facility. The legal name of the facility must be sent in the first sequence. If the legal name of the facility is not sent, then the repeat delimiter must be sent in the first sequence. Immunization registries may use this field to indicate a patient's medical home. Hierarchical organizational structures may be reflected here. For example, after the legal organization name is sent in the first sequence, a medical home facility name may also be sent, with the appropriate identifier type indicated.

> XON data type components: <organization name (ST)>^ <organization name type code (IS)>^<ID Number (NM)>^<check digit (NM)>^<code identifying the check digit scheme employed (ID)>^<assigning authority (HD)>^<identifier type code (IS)>^<assigning facility ID (HD)>^<name representation code (ID)>
>
> Subcomponents of assigning authority: <namespace ID (IS)>&<universal ID (ST)>&<universal ID type (ID)>
>
> Subcomponents of assigning facility: <namespace ID (IS)>&<universal ID (ST)>&<universal ID type (ID)>
>
> Refer to *User-defined Table 0204 - Organizational Name Type* for the second component, to *HL7 Table 0061 - Check Digit Scheme* for the fifth component, to *User-defined Table 0203 - Identifier Type* for the seventh component, and to *HL7 Table 4000 - Name/address representation* for the last component.

In our VXU #2 and VXR examples, we have listed a medical home organization and a corresponding facility.

The CE data type transmits codes and the text associated with the code. This type has six components arranged in two groups as follows:

<identifier (ST)>^<text (ST)>^<name of coding system (ST)>^
<alternate identifier (ST)>^<alternate text (ST)> ^<name of alternate coding system (ST)>

CE data type components are defined as follows:

(1) Identifier (ST). The code that uniquely identifies the item being referenced by the <text>. Different coding schemes will have different elements here.

(2) Text (ST). Name or description of the item in question.

(3) Name of coding system (ST). Identifies the coding system used. The combination of the identifier and the name of the coding system components will be a unique code for a data item.

(4-6) Three components analogous to 1-3 for the alternate or local coding system.

In our VXU #2 and VXR examples, the patient may be sent both reminder and recall notices by mail.

PD1 3.3.9.12 Protection indicator (ID-1, Optional) 00744

Definition: This field identifies whether access to information about this person should be kept from users who do not have adequate authority for the patient. Refer to *HL7 Table 0136 - Yes/No indicator* for valid values.

The value of an ID data type follows the formatting rules for an ST data type except that it is drawn from a table of HL7 legal values.

This field will be used by immunization registries to indicate whether or not consent has been given (or assumed) for record sharing. It can have 3 values with the following meanings: 1) null, designated by "" (see section 2.6 of HL7 Version 2.3.1 for discussion of null value). Null will indicate that pati ent/guardian has not yet been asked to give consent to share or has not responded; 2) Y - sharing is allowed (patient has given consent or consent is implied); 3) N - sharing is not allowed (patient has refused consent).

For registries with required consent (e.g., California), the suggested default value for this field is null ("") to indicate that consent has not yet been requested or received. For registries with implied consent (e.g., Georgia), the suggested default value is "Y" to allow sharing unless the patient specifically refuses consent.

When a registry receives a request for a record for which record sharing is not permitted (value is N), that application should return a QAK query acknowledgment with the query response status field valued as "NF," meaning "no data found, no errors." No other information should be provided. When PD1 -12 is valued as "N," that record should never be shared outside the scope outlined by the consent agreement. In the mistaken case that a sending application sends or updates a record for which PD1-12 is "N," the receiving application should not process the message. A QAK segment should be returned to the sending application indicating "AE" for "application error" in the query response status field. MSA-3, Text message, should be valued to indicate that PD1-12 was "N" so the record was not processed and should not be re-sent.

In our VXU #2 and VXR examples, the patient has consented to sharing, so the value indicated is "Y."

PD1 3.3.9.13 Protection indicator effective date (DT-8, Optional) 01566
Note: This field was added to HL7's Version 2.4 at NIP's request, but may be used by registries in Version 2.3.1 messages.

Definition: Effective date for protection indicator reported in PD1-12.

DT data type format: YYYY[MM[DD]]

PD1 3.3.9.16 Immunization registry status (IS-1, Optional) 01569
Note: This field was added to HL7's Version 2.4 at NIP's request, but may be used by registries in Version 2.3.1 messages.

Definition: This field identifies the registry status of the patient. Examples include active, inactive, lost to follow-up, moved or gone elsewhere (MOGE). Refer to *User-defined Table 0441-Immunization registry status* for suggested values. Note that Table 0441 is consistent with the former Table *NIP006 - Patient registry status* except that the code for Inactive has been changed to "I." A deceased patient should be recorded in PID-30, with date and time of death recorded in PID-29.

The IS data type follows the formatting rules for an ST field except that it is drawn from a site-defined (or user-defined) table of legal values.

In our VXR example, the registry status of this patient is active.

PD1 3.3.9.17 Immunization registry status effective date (DT-8, Optional) 01570
Note: This field was added to HL7's Version 2.4 at NIP's request, but may be used by registries in Version 2.3.1 messages.

Definition: Effective date for registry status reported in PD1-16. A deceased patient should be recorded in PID-30, with date and time of death recorded in PID-29.

DT data type format: YYYY[MM[DD]]

In our VXR example, the birth date of June 7, 1990, is the effective date of active status shown in PD1-14.

PD1 3.3.9.18 Publicity code effective date (DT-8, Optional) 01571
Note: This field was added to HL7's Version 2.4 at NIP's request, but may be used by registries in Version 2.3.1 messages.

Definition: Effective date for publicity code reported in PD1-11.

DT data type format: YYYY[MM[DD]]

3.3.5 **Next of Kin (NK1) Segment**

Contains information about the patient's next of kin and other associated or related parties. This is a repeating segment, allowing for multiple related parties.

NK1 Attributes

SEQ	LEN	DT	R/O	RP/#	TBL#	ITEM#	ELEMENT NAME
1	**4**	**SI**	**R**			**00190**	**Set ID - NK1**
2	**48**	**XPN**	**O**	**Y**		**00191**	**Name**
3	**60**	**CE**	**O**		**0063**	**00192**	**Relationship**
4	106	XAD	O	Y		00193	Address
5	40	XTN	O	Y		00194	Phone number
6	40	XTN	O	Y		00195	Business phone number
7	60	CE	O		0131	00196	Contact role
8	8	DT	O			00197	Start date
9	8	DT	O			00198	End date
10	60	ST	O			00199	Next of kin/AP job title
11	20	JCC	O		0327/ 0328	00200	Next of kin/AP job code/class
12	20	CX	O			00201	Next of kin/AP employee number
13	90	XON	O	Y		00202	Organization name - NK1
14	80	CE	O		0002	00119	Marital status
15	1	IS	O		0001	00111	Sex
16	26	TS	O			00110	Date/time of birth
17	2	IS	O	Y	0223	00755	Living dependency
18	2	IS	O	Y	0009	00145	Ambulatory status
19	80	CE	O	Y	0171	00129	Citizenship
20	60	CE	O		0296	00118	Primary language
21	2	IS	O		0220	00742	Living arrangement
22	80	CE	O		0215	00743	Publicity code
23	1	ID	O		0136	00744	Protection indicator
24	2	IS	O		0231	00745	Student indicator
25	80	CE	O		0006	00120	Religion
26	48	XPN	O	Y		00746	Mother's maiden name
27	80	CE	O		0212	00739	Nationality
28	80	CE	O	Y	0189	00125	Ethnic group
29	80	CE	O	Y	0222	00747	Contact reason
30	48	XPN	O	Y		00748	Contact person's name
31	40	XTN	O	Y		00749	Contact person's telephone number
32	106	XAD	O	Y		00750	Contact person's address
33	32	CX	O	Y		00751	Next of kin/AP's identifiers
34	2	IS	O		0311	00752	Job status
35	80	CE	O	Y	0005	00113	Race
36	2	IS	O		0295	00753	Handicap
37	16	ST	O			00754	Contact person social security #

3.3.5.0 NK1 field definitions

Usage notes: We do not anticipate immunization registries using several NK1 fields (NK1-7-15,17-20,22-28,30-31,34-37); therefore, we do not provide definitions for them here. The NK1 segment should be used to send the mother's full name (a core data element). *NK1-2 - Name* may be repeated to also send the mother's maiden name. If the mother's maiden name is sent in the NK1, it should also be mapped to *PID-6 - Mother's maiden name*.

NK1 3.3.5.1 Set ID - NK1 (SI-4, Required) 00190

Definition: The Set ID field numbers the repetitions of the segment within its association with the PID. For the first occurrence of the segment, the sequence number shall be one, for the second occurrence, the sequence number shall be two, etc.

> SI data type is a non-negative integer in the form of an NM field. The uses of this data type are defined in the chapters defining the segments and messages in which it is used.

In our VXX, VXU #2 and VXR examples, 1 indicates that this segment is the first set of next of kin data, in this case the mother's information, and 2 indicates that this is the second next of kin data, the father's.

NK1 3.3.5.2 Name (XPN-48, Optional, Repeating) 00191

Definition: This field gives the name of the next of kin or associated party. Multiple names for the same person are allowed, but the legal name must be sent in the first sequence. If the legal name is not sent, then the repeat delimiter must be sent in the first sequence.

> XPN data type components: <family name (ST)>&<last name prefix (ST)>^<given name (ST)>^<middle initial or name (ST)>^<suffix (e.g., JR or III) (ST)>^<prefix (e.g., DR) (ST)>^<degree (e.g., MD) (IS)>^<name type code (ID)>^<name representation code (ID)>
>
> For valid values, refer to *User-defined Table 0360 - Degree* for the degree component, to *HL7 Table 0200 - Name type* for the name type code, and to *HL7 Table 4000 - Name/address representation* for the name representation code.

In our VXU #1, VXU #2, and VXR examples, we have shown the **mother** as Jacqueline Lee Kennedy. In our VXU #2 and VXR examples, we have also shown the father as John Fitzgerald Kennedy.

NK1 3.3.5.3 Relationship (CE-60, Optional) 00192

Definition: This field defines the personal relationship of the next of kin. *User-defined Table 0063 -Relationship* gives suggested values as defined in HL7 Standard Version 2.4. It is recommended that the original table, which was based on the X12N standard relationship codes, be replaced with the new HL7 table from Version 2.4 in order to keep the codes consistent with the newer HL7 implementations.

> The CE data type transmits codes and the text associated with the code. This type has six components arranged in two groups as follows:
>
> <identifier (ST)>^<text (ST)>^<name of coding system (ST)>^
> <alternate identifier (ST)>^<alternate text (ST)> ^<name of alternate coding system (ST)>
>
> CE data type components are defined as follows:
> (1) Identifier (ST). The code that uniquely identifies the item being referenced by the <text>. Different coding schemes will have different elements here.
> (2) Text (ST). Name or description of the item in question.
> (3) Name of coding system (ST). Identifies the coding system used. The combination of the identifier and the name of the coding system components will be a unique code for a data item.
> (4-6) Three components analogous to 1-3 for the alternate or local coding system.

In our VXU #1, VXU #2, and VXR examples, we have used *User-defined Table 0063 - Relationship* code MTH=mother. In our VXU #2 and VXR examples, we have also used code FTH=father.

NK1 3.3.5.4 Address (XAD-106, Optional, Repeating) 00193

Definition: This field lists the mailing address of the next of kin/associated party. Multiple addresses for the same person may be sent in the following sequence: the primary mailing address must be sent first in the sequence; if the mailing address is not sent, then a repeat delimiter must be sent in the first sequence. If there is only one repetition of this field and an address type is not given, it is assumed to be the primary mailing address.

4.8 PHARMACY/TREATMENT ORDERS

4.3.1 Common Order (ORC) Segment

Used to transmit fields that are common to all orders (all types of services that are requested).

ORC Attributes

SEQ	LEN	DT	R/O	RP/#	TBL#	ITEM#	ELEMENT NAME
1	2	ID	R		0119	00215	Order control
2	22	EI	C			00216	Placer order number
3	22	EI	C			00217	Filler order number
4	22	EI	O			00218	Placer group number
5	2	ID	O		0038	00219	Order status
6	1	ID	O		0121	00220	Response flag
7	200	TQ	O			00221	Quantity/timing
8	200	CM	O			00222	Parent
9	26	TS	O			00223	Date/time of transaction
10	120	XCN	O			00224	Entered by
11	120	XCN	O			00225	Verified by
12	120	XCN	O			00226	Ordering provider
13	80	PL	O			00227	Enterer's location
14	40	XTN	O	Y/2		00228	Call back phone number
15	26	TS	O			00229	Order effective date/time
16	200	CE	O			00230	Order control code reason
17	60	CE	O			00231	Entering organization
18	60	CE	O			00232	Entering device
19	120	XCN	O			00233	Action by
20	40	CE	O		0339	01310	Advanced beneficiary notice code
21	60	XON	O	Y		01311	Ordering facility name
22	106	XAD	O	Y		01312	Ordering facility address
23	48	XTN	O	Y		01313	Ordering facility phone number
24	106	XAD	O	Y		01314	Ordering provider address

4.3.1.0 ORC field definitions

Usage notes: This is an optional segment in the message syntax for VXR and VXU. We do not anticipate immunization registries using this segment, but do provide field definitions for some information that may be useful. If ~~it~~ the segment is used, the following string indicates a minimum response:

ORC|OK|<placer order number>|<filler order number>|<CR>

ORC 4.3.1.21 Ordering facility name (XON-60, Optional, Repeating) 01311

Definition: This field contains the name of the facility placing the order.

ORC 4.3.1.22 Ordering facility address (XAD-106, Optional. Repeating) 01312

Definition: This field contains the address of the facility placing the order.

ORC 4.3.2.23 Ordering facility phone number (XTN-48, Optional, Repeating) 01313

Definition: This field contains the telephone number of the facility placing the order. This field further identifies the facility identified in ORC-21.

ORC 4.3.2.24 Ordering provider address (XAD-106, Optional, Repeating) 01314

Definition: This field contains the address of the care provider requesting the order. This field contains relevant address information for the ordering provider described in OBR-16.

RXA 4.8.14.6 Administered amount (NM-20, Required) 00348

Definition: This field records the amount of pharmaceutical administered. The units are expressed in the next field, RXA-7.

In our examples, the amount of each vaccine administered was .5 mL.

RXA 4.8.14.7 Administered units (CE-60, Conditional) 00349

Definition: This field is conditional because it is required if the administered amount code does not imply units. Must be in simple units that reflect the actual quantity of the substance administered. It does not include compound units.

> The CE data type transmits codes and the text associated with the code. This type has six components arranged in two groups as follows:
> <identifier (ST)>^<text (ST)>^<name of coding system (ST)>^
> <alternate identifier (ST)>^<alternate text (ST)> ^<name of alternate coding system (ST)>
>
> CE data type components are defined as follows:
> (1) Identifier (ST). The code that uniquely identifies the item being referenced by the <text>. Different coding schemes will have different elements here.
> (2) Text (ST). Name or description of the item in question.
> (3) Name of coding system (ST). Identifies the coding system used. The combination of the identifier and the name of the coding system components will be a unique code for a data item.
> (4-6) Three components analogous to 1-3 for the alternate or local coding system.

In our examples, we show ML to designate milliliter and ISO + as the coding system. If no coding system is listed, ISO+ is the default system.

RXA 4.8.14.8 Administered dosage form (CE-60, Optional) 00350

Definition: The dosage form indicates the manner in which the medication is aggregated for dispensing, e.g., tablets, capsules, suppositories. In some cases, this information is implied by the dispense/give code in RXA-5. Use this field when the administered code does not specify the dosage form. Generally, immunization registries will not need to use this field.

> The CE data type transmits codes and the text associated with the code. This type has six components arranged in two groups as follows:
> <identifier (ST)>^<text (ST)>^<name of coding system (ST)>^
> <alternate identifier (ST)>^<alternate text (ST)> ^<name of alternate coding system (ST)>
>
> CE data type components are defined as follows:
> (1) Identifier (ST). The code that uniquely identifies the item being referenced by the <text>. Different coding schemes will have different elements here.
> (2) Text (ST). Name or description of the item in question.
> (3) Name of coding system (ST). Identifies the coding system used. The combination of the identifier and the name of the coding system components will be a unique code for a data item.
> (4-6) Three components analogous to 1-3 for the alternate or local coding system.

In our examples, we have not valued this field.

RXA 4.8.14.9 Administration notes (CE-200, Optional, Repeating) 00351

Definition: Free text notes from the provider administering the medication. If coded, requires a user-defined table. If free text, place a null in the first component and the text in the second, e.g., |^this is a free text administration note|. Immunization registries may use this field to record information that is not found elsewhere in the message; e.g., indicate the source of information for this immunization record or, more generically, whether the immunization being reported has just been administered (new) or came from other records (historical). Refer to *NIP-defined Table NIP001 - Immunization Information Source* for these codes. <two sentences deleted>

The CE data type transmits codes and the text associated with the code. This type has six components arranged in two groups as follows:

<identifier (ST)>^<text(ST)>^<name of coding system(ST)>^
<alternate identifier(ST>^alternate text(ST)>^<name of alternate coding system(ST)>

CE data type components are defined as follows:
(1) Identifier (ST). The code that uniquely identifies the item being referenced by the <text>. Different coding schemes will have different elements here.
(2) Text (ST). Name or description of the item in question.
(3) Name of coding system (ST). Identifies the coding system used. The combination of the identifier and the name of the coding system components will be a unique code for a data item.
(4-6) Three components analogous to 1-3 for the alternate or local coding system.

In our VXU #2 and VXR examples, the Hepatitis B vaccine came from a parent's immunization history; the DTaP-Hib was new; and the information sources for the remaining immunizations (MMR and DTaP) are not stated.

RXA 4.8.14.10 Administering provider (XCN-200, Optional, Repeating) 00352

Definition: This field is intended to contain the name and provider ID of the person physically administering the pharmaceutical. This person (the "vaccinator") should be listed first. In addition, immunization registries may desire to record the provider who ordered the immunization (the "orderer") and/or the person who recorded the immunization into the registry (the "re corder"). These persons may also be listed. In order to distinguish between these persons, the following identifier type codes should be used: VEI - for vaccinator employee number; OEI - for orderer employee number (Note: The person identified by this code should be the same person listed in ORC -12, Orderer, for those systems that use the ORC segment.); and REI - for recorder employee number.

Components of the XCN data type: <ID number (ST)>^<family name (ST)>&<last name prefix (ST)>^<given name (ST)>^<middle initial or name (ST)>^<suffix (e.g., Jr. or III) (ST)>^<prefix (e.g., Dr.) (ST)>^<degree (e.g., MD) (IS)>^<source table (IS)>^<assigning authority (HD)>^<name type code (ID)>^<identifier check digit (ST)>^<code identifying the check digit scheme employed (ID)>^<identifier type code (IS)>^<assigning facility ID (HD)>^<name representation code (ID)>

Subcomponents of assigning authority: <namespace ID (IS)>&<universal ID (ST)> & <universal ID type (ID)>

Subcomponents of assigning facility: <namespace ID (IS)>&<universal ID (ST)> & <universal ID type (ID)>

In our VXU #2 and VXR examples, the new vaccines were administered by Nurse Sally S. Smith, with ID number 1234567890 and ID type VEI. Dr. Robert A. O'Brian, ID number 1234567891, ordered the vaccinations and was listed as OEI ID type. The historical vaccination was administered by Lisa Jones, with no ID number listed.

RXA 4.8.14.11 Administered at location (CM-200, Conditional) 00353

Definition: Name and address of facility where medical substance was administered.

The specific components of fields using the CM data type are defined within the field descriptions.
The components for this field are: <point of care (IS)>^< room (IS)>^<bed (IS)>^< facility (HD)>^<location status (IS)>^<patient location type (IS)>^<building (IS)>^<floor (IS)>^<street address (ST)>^< other designation (ST)>^<city (ST)>^<state or province (ST)>^<zip or postal code (ST)>^<country (ID)>^<address type (ID)>^<other geographic designation (ST)>

Subcomponents of facility (HD): <namespace ID (IS)>&<universal ID (ST)>&< universal ID type (ID)>

In our VXU #2 and VXR examples, we used Child Healthcare Clinic at 101 Main Street, Boston, MA as the facility location for the new vaccinations. The historical vaccination was administered at Children's Hospital, with no further address.

RXA 4.8.14.12 Administer per (time unit) (ST-20, Conditional) 00354

Definition: This field records the rate at which this medication was administered. Except for intravenous administrations, this field is not likely to be used by immunization registries.

In our examples, we have not valued this field.

RXA 4.8.14.13 Administered strength (NM-20, Optional) 01134

Definition: Use when RXA-5-administered code does not specify the strength. This is the numeric part of the strength, used in combination with RXA-14 Administered Strength Unit.

In our VXU #2 and VXR examples, we used this field only for Hepatitis B vaccine where we indicated 5 mcg for the pediatric/adolescent formulation.

RXA 4.8.14.14 Administered strength unit (CE-60, Optional) 01135

Definition: Use when RXA-5-administered code does not specify the strength. This is the unit of the strength, used in combination with Administered Strength.

> The CE data type transmits codes and the text associated with the code. This type has six components arranged in two groups as follows:
> <identifier (ST)>^<text (ST)>^<name of coding system (ST)>^
> <alternate identifier (ST)>^<alternate text (ST)> ^<name of alternate coding system (ST)>
>
> CE data type components are defined as follows:
> (1) Identifier (ST). The code that uniquely identifies the item being referenced by the <text>. Different coding schemes will have different elements here.
> (2) Text (ST). Name or description of the item in question.
> (3) Name of coding system (ST). Identifies the coding system used. The combination of the identifier and the name of the coding system components will be a unique code for a data item.
> (4-6) Three components analogous to 1-3 for the alternate or local coding system.

Note: These units can be a "compound" quantity; i.e., the units may express a quantity per unit of time. For example, micrograms per hour (µg/h) is an acceptable value.

In our VXU #2 and VXR examples, we used MCG for micrograms and ISO+ for the coding system for the Hepatitis B vaccine only.

RXA 4.8.14.15 Substance lot number (ST-20, Optional, Repeating) 01129

Definition: This field records the lot number of the medical substance administered.

Note: The lot number is the number printed on the label attached to the container holding the substance and on the packaging which houses the container. If the substance is a vaccine and a diluent is required, a lot number may appear on the vial containing the diluent; however, any such identifier associated with a diluent is not the identifier of interest. The substance lot number should be reported, not that of the diluent.

In our examples, the lot numbers (e.g., W2341234567 for second dose MMR) are listed for each of the newly administered vaccines.

RXA 4.8.14.16 Substance expiration date (TS-26, Optional, Repeating) 01130

Definition: This field identifies the expiration date of the medical substance administered.

7.3 OBSERVATION REPORTING SEGMENTS

Use of the Optional OBX Segments

OBX segments have great flexibility to report information. When properly coded, OBX segments report a large amount of information in a small amount of space. OBX is widely used to report laboratory and other clinical information. For immunization registries, these segments can be configured to code adverse events, allergies related to vaccines, and many other kinds of data. For information that is commonly reported among registries, nationally standardized code sets such as Logical Observation Identifier, Names and Codes (LOINC®) are preferred over local user-defined code sets to facilitate a common vocabulary among registries. Code sets that under HL7 rules are user-defined will be agreed upon by the participants in the development of this document so that registries can efficiently exchange information. Registries are discouraged from establishing their own code sets, and instead are asked to coordinate their data needs through CDC's National Immunization Program so that all users will have a common vocabulary. CDC will maintain the latest version of these tables on its web site at <www.cdc.gov/nip/registry>.

The optional, repeating OBX segment in the VXR and VXU messages provides information about a single vaccine event. It includes a field that identifies what kind of observation will be recorded in this segment (e.g., contraindication–can be used to indicate what condition the patient had that contraindicated receipt of the vaccine when RXA-18 indicates that the vaccine was not given and the RXA dose number is valued as zero). The optional, repeating Notes and Comments (NTE) segment may be inserted after any of the OBX segments. The note segment applies to the information in the segment that immediately precedes it, i.e., the observation reported in the preceding OBX segment. The NTE segment can carry any text relevant to the vaccine event or the observation and can give its source; however, without further standardization human intervention will be required to make the information useful. The NTE segment is not further defined by HL7.

HL7 does not require the use of a particular coding system to identify either the observation or the result. In the past, users tended to invent their own unique code systems for identifying tests and other clinical observations because standard codes were not available. Such local code systems suffice for transmitting information within single institutions, but present high barriers to aggregating data from many sources for research or for public health record systems. Standard code systems such as LOINC® and Systematized Nomenclature of Human and Veterinary Medicine (SNOMED) now exist for many of these purposes, and we strongly encourage their use in immunization registry reporting. Standard codes can be sent as the only code, or they can be sent along with the local historic code as the second code system represented in the field (a CE data type allows for two coded representations of the same concept in a single field). When two different codes for the same information are sent this way in OBX segments of immunization registries, the nationally standardized code should be sent in the first triplet of the CE data type. ~~Information on how to obtain various nationally- and internationally-used code sets can be found at <www.mcis.duke.edu/standards/guide.htm>.~~

For immunization registries, several categories of information have been identified that may be reported using the OBX segment in immunization messages. LOINC® codes for values in OBX-3 are provided in *NIP-defined Table NIP003 - Observation identifiers*. NIP has defined other tables in this document (see *NIP-defined Tables NIP001*, *NIP002*, *NIP004*, *NIP005*, and *NIP006*) that reflect concepts particularly relevant to immunization registry reporting where no standardized code set has been identified.

Examples of the following uses of OBX are given in the VXR example:

1. Dose number for component antigens in combination vaccines when individual component dose numbers are different from the dose number of the combination vaccine
2. Contraindications, Precautions, and Immunities
3. Vaccine Adverse Events Reporting (VAERS)
4. Date Vaccine Information Statement Published
5. Date Vaccine Information Statement Presented

7.3.2 **Observation/Result (OBX) Segment**

Used to transmit an observation or observation fragment.

OBX Attributes

SEQ	LEN	DT	R/O	RP/#	TBL#	ITEM#	ELEMENT NAME
1	4	SI	O			00569	Set ID-OBX
2	3	ID	C		0125	00570	Value type
3	80	CE	R			00571	Observation identifier
4	20	ST	C			00572	Observation sub-ID
5	65536[1]	-	C	Y[2]		00573	Observation value
6	60	CE	O			00574	Units
7	60	ST	O			00575	Reference ranges
8	5	ID	O	Y/5	0078	00576	Abnormal flags
9	5	NM	O			00577	Probability
10	2	ID	O	Y	0080	00578	Nature of abnormal test
11	1	ID	R		0085	00579	Observ result status
12	26	TS	O			00580	Date last obs normal values
13	20	ST	O			00581	User defined access checks
14	26	TS	O			00582	Date/time of the observation
15	60	CE	O			00583	Producer's ID
16	80	XCN	O	Y		00584	Responsible observer
17	60	CE	O	Y		00936	Observation method

[1] The length of the observation field is variable, depending upon value type. See *OBX-2 value type*.
[2] The observation value may repeat for multipart, single answer results with appropriate data types, e.g., CE, TX, and FT data types.

7.3.2.0 OBX field definitions

Usage notes: There are two OBX fields that we do not anticipate that immunization registries will need to use, so we do not provide definitions for them here. These are OBX -12-13.

OBX 7.3.2.1 Set ID - observation simple (SI-4, Optional) 00569

Definition: This field contains the sequence number. Since OBX is a repeating segment in immunization messages, the number in this field will increase by one for each OBX used for a single RXA.

SI data type is a non-negative integer in the form of an NM field. The uses of this data type are defined in the chapters defining the segments and messages in which it is used.

In our VXR example, for the DTaP-Hib vaccine, we show the first and second sequence number for the two OBX segments.

OBX 7.3.2.2 Value type (ID-3, Conditional) 00570

Definition: This field contains the data type which defines the format of the observation value in OBX-5. A full explanation of possible data types is given below so that users will have complete information. However, for immunization registries, this field will usually be CE, NM, ST, DT, or TS.

The value of an ID data type follows the formatting rules for an ST data type except that it is drawn from a table of HL7 legal values.

Data types in OBX-2. This field must be a standard HL7-defined data type. It must be valued if *OBX-11-Observ result status* is not valued with an X, meaning no results can be obtained for this observation. If

the value is CE then the result must be a coded entry. When the value type is TX or FT then the results are bulk text.

Although NM is a valid type, observations which are usually reported as numbers will sometimes have the string (ST) data type because non-numeric characters are often reported as part of the result, e.g., >300 to indicate the result was off-scale for the instrument. In the example, ">300", ">" is a symbol and the digits are considered a numeric value. However, this usage of the ST type should be discouraged since the SN (structured numeric) data type now accommodates such reporting and, in addition, permits the receiving system to interpret the magnitude. All HL7 data types are valid, except CM, CQ, SI, and ID. This is because, for a CM definition to have meaning, the specifics about the CM must be included in the field definition. *OBX-5-observation value* is a general field definition that is influenced by the data type *OBX-3*, so CMs are undefined in this context. CQ is invalid because units for *OBX-5-observation value* are always specified explicitly in an OBX segment with *OBX-6 units*. SI is invalid because it only applies to HL7 message segments, and ID because it requires a constant field definition. We allow the FT data type in the OBX segment but its use is discouraged. Formatted text usually implies a meaningful structure e.g., a list of three independent diagnoses reported on different lines. But ideally, the structure in three independent diagnostic statements would be reported as three separate OBX segments. TX should **not** be used except to send large amounts of text. In the TX data type, the repeat delimiter can only be used to identify paragraph breaks. Use ST to send short, and possibly encodable, text strings.

In our VXR example, each OBX occurrence of this field is valued appropriately to represent the data type of the expected value in OBX-5.

OBX 7.3.2.3 Observation identifier (CE-80, Required) 00571

Definition: This field contains a unique identifier for the observation, or the thing being reported. The format is that of the Coded Element (CE). Example: OBX|1|CE|6023^football field length^SCS||..., where 6023 is a code for the observation "football field length" contained in Susan's Coding System (SCS).

> The CE data type transmits codes and the text associated with the code. This type has six components arranged in two groups as follows:
> <identifier (ST)>^<text (ST)>^<name of coding system (ST)>^
> <alternate identifier (ST)>^<alternate text (ST)> ^<name of alternate coding system (ST)>
>
> CE data type components are defined as follows:
> (1) Identifier (ST). The code that uniquely identifies the item being referenced by the <text>. Different coding schemes will have different elements here.
> (2) Text (ST). Name or description of the item in question.
> (3) Name of coding system (ST). Identifies the coding system used. The combination of the identifier and the name of the coding system components will be a unique code for a data item.
> (4-6) Three components analogous to 1-3 for the alternate or local coding system.

In our VXR example, we have valued thi s field to show what observation will be reported in OBX-5. For example, following the RXA segment showing the administration of a DtaP vaccine, OBX -3 and 5 show the VIS publication date and the date the VIS was presented to the patient. Following the RX A segment showing the administration of a DTaP-Hib combination vaccine, OBX-3 and 5 indicate the individual dose numbers of each vaccine component. Following the RXA segment showing the administration of the second MMR, the OBX-3 and 5 show the report of an adverse event. For the results of the tuberculosis test, we use an OBX segment to show a measurement of the reaction.

OBX 7.3.2.4 Observation sub-ID (ST-20, Conditional) 00572

Definition: This field is used to distinguish between multiple OBX segments with the same observation ID. For example, a chest X-ray report might include three separate diagnostic impressions. The standard requires three OBX segments, one for each impression. By putting a 1 in the Sub-ID of the first of these OBX segments, 2 in the second, and 3 in the third, we can uniquely identify each OBX segment for editing or replacement. The sub-identifier can be further extended by adding decimals (e.g., 2.1, 2.2).

The use of the sub ID to distinguish repeating OBXs for the same observation ID is really a special case of using the sub ID to group related subdivisions of information within the overall observation category. Its use must be carefully structured to avoid introducing ambiguities.

In our examples, we have not valued this field.

OBX 7.3.2.5 Observation value (User-assigned, Conditional, Repeating) 00573

Definition: This field contains the value observed by the observation producer. *OBX-2-value type* contains the data type for this field according to how the observation value is formatted. It is not a required field because some systems will report only the normalcy/abnormalcy (*OBX-8*), especially in product experience reporting. This field contains the value of, or amount reported, or response to *OBX-3-observation identifier* of the same segment. Depending upon the observation, the data type may be a number (e.g., a respiratory rate), a coded answer (e.g., a pathology impression recor ded as a SNOMED code), or a date/time (the date/time that a unit of blood is sent to the ward). An observation value is always represented as the data type specified in *OBX-2-value type* of the same segment.

Example: OBX|1|ST|6023^football field length^SCS||100 yards|
(OBX-2 shows the ST data type used to record the result value in OBX -5,"100 yards.")

In our VXR example, we give several demonstrations of use of this field: 1) to show that the VIS publication date for DTaP was June 5, 1990; 2) that the VIS was presented to the patient on December 7, 1990; and 3) that this is the fourth dose of DTaP and the fourth dose of Hib in the combination vaccine. For the second MMR, this field shows anaphylaxis as the adverse event. For the results of the tuberculosis test, we show a measurement of 1 mm.

OBX 7.3.2.6 Units (CE-60, Optional) 00574

Definition: This field contains the units for the observation value in OBX-5. The default value is ISO+abbreviation, as defined.

> The CE data type transmits codes and the text associated with the code. This type has six components arranged in two groups as follows:
>
> <identifier (ST)>^<text (ST)>^<name of coding system (ST)>^
> <alternate identifier (ST)>^<alternate text (ST)> ^<name of alternate coding system (ST) >
>
> CE data type components are defined as follows:
> (1) Identifier (ST). The code that uniquely identifies the item being referenced by the <text>. Different coding schemes will have different elements here.
> (2) Text (ST). Name or description of the item in question.
> (3) Name of coding system (ST). Identifies the coding system used. The combination of the identifier and the name of the coding system components will be a unique code for a data item.
> (4-6) Three components analogous to 1-3 for the alternate or local coding system.

In our VXR example, we show the units to be millimeters.

OBX 7.3.2.7 References range (ST-60, Optional) 00575

Definition: When the observation quantifies the amount of a toxic substance, then the upper limit of the range identifies the toxic limit. If the observation quantifies a drug, the lower limits identify the lower therapeutic bounds and the upper limits represent the upper therapeutic bounds above which toxic side effects are common.

If numeric, the values of this field may report several values in one of the following three formats:

a) lower limit-upper limit (when both lower and upper limits are defined, e.g., for potassium 3.5 - 4.5)
b) > lower limit (if no upper limit, e.g., >10)
c) < upper limit (if no lower limit, e.g., <15)

APPENDIX 1: Code Tables

NOTE: Where only selected values are listed for HL7 tables, please refer to the HL7 Standard for complete listings. In this appendix, values are selected from standard codes where available. Values that are assigned by NIP are italicized.

User-defined Table 0001 - Sex [values suggested by HL7] (use in PID-8, NK1-15)

Value	Description
F	Female
M	Male
O	Other
U	Unknown

HL7-defined Table 0003 - Event type [only selected values listed] (use in MSH-9, second component)

Value	Description
A28	ADT/ACK - Add person information
A29	ADT/ACK - Delete person information
A30	ADT/ACK - Merge person information
A31	ADT/ACK - Update person information
V01	VXQ – Query for vaccination record
V02	VXX - Response to vaccination query returning multiple PID matches
V03	VXR - Vaccination record response
V04	VXU - Unsolicited vaccination record update
R01	ORU – Observation results (Unsolicited)

User-defined Table 0004 - Patient class [values suggested by HL7] (use in PV1-2)

Value	Description
E	Emergency
I	Inpatient
O	Outpatient
P	Pre-admit
R	Recurring Patient
B	Obstetrics

User-defined Table 0005 - Race [These values are consistent with the OMB Notice of revised categories for collection of race and ethnicity data-- the combined format.] (use in PID-10, NK1-35)

US race codes (included in HL7 Version 2.4) (entire hierarchical set of codes at http://www.cdc.gov/od/hissb/docs/Race-EthnicityCodeSet.pdf)	Description	NIP original race codes	Description
1002-5	American Indian or Alaska Native	I	American Indian or Alaska Native
2028-9	Asian	A	Asian or Pacific Islander
2076-8	Native Hawaiian or Other Pacific Islander	A	Asian or Pacific Islander
2054-5	Black or African-American	B	Black or African-American
2106-3	White	W	White
2135-2	Hispanic or Latino	H	Hispanic
2186-5	not Hispanic or Latino		
2131-1	Other Race	O	Other
	Unknown	U	Unknown

HL7-defined Table 0008 - Acknowledgment code (use in MSA-1)

Value	Description
AA	Original mode: Application Accept; Enhanced mode: Application acknowledgment: Accept
AE	Original mode: Application Error; Enhanced mode: Application acknowledgment: Error

Value	Description
AR	Original mode: Application Reject Enhanced mode: Application acknowledgment: Reject
CA	Enhanced mode: Application acknowledgment: Commit Accept
CE	Enhanced mode: Application acknowledgment: Commit Error
CR	Enhanced mode: Application acknowledgment: Commit Reject

User-defined Table 0010 - Physician ID (use in all XCN data types; including PV1-7,8,9,17, RXA-10)
[locally-defined] Each registry should establish a system of coding its reporting physicians. The National Provider Identifier (NPI) may be used for this purpose when it becomes available.

HL7-defined Table 0048 - What subject filter [only selected values listed] (use in QRD-9)

Value	Description
VXI	Vaccine Information

HL7-defined Table 0061 - Check digit scheme (use in all CX data types; including PID-2,3,4,18,21)

Value	Description
M10	Mod 10 algorithm
M11	Mod 11 algorithm
ISO	ISO 7064: 1983
NPI	Check digit algorithm in the US National Provider Identifier

User-defined Table 0062 - Event reason [values suggested by HL7; *with NIP-suggested additions*] (use in EVN-4)

Value	Description
01	Patient request
02	Physician order
03	Census management
04	*Add person data to immunization registry*
05	*Delete person data from immunization registry*
06	*Update person data in immunization registry*
07	*Merge person data in immunization registry*

User-defined Table 0063 - Relationship [as defined in HL7's Version 2.4] (use in NK1-3, IN1-17, IN2-62)

Value	Description
ASC	Associate
BRO	Brother
CGV	Care giver
CHD	Child
DEP	Handicapped dependent
DOM	Life partner
EMC	Emergency contact
EME	Employee
EMR	Employer
EXF	Extended family
FCH	Foster child
FND	Friend
FTH	Father
GCH	Grandchild
GRD	Guardian
GRP	Grandparent
MGR	Manager
MTH	Mother
NCH	Natural child
NON	None
OAD	Other adult

OTH	Other
OWN	Owner
PAR	Parent
SCH	Stepchild
SEL	Self
SIB	Sibling
SIS	Sister
SPO	Spouse
TRA	Trainer
UNK	Unknown
WRD	Ward of court

User-defined Table 0064 - Financial class [*NIP suggested values*] (use in PV1-20)

Value	Description
VFC eligibility codes	
V00	*VFC eligibility not determined/unknown*
V01	*not VFC eligible*
V02	*VFC eligible - Medicaid/Medicaid Managed Care expansion*
V03	*VFC eligible – Uninsured*
V04	*VFC eligible - American Indian/Alaskan Native*
V05	*VFC eligible - Federally Qualified Health Center Patient (under-insured)*
V06	*VFC eligible - State-specific eligibility*
V07	*VFC eligible - Local-specific eligibility*
S-Chip eligibility codes	
CH00	*S-CHIP coverage-not VFC eligible*
CH01	*S-CHIP coverage-separate from Medicaid-not VFC eligible*
CH02	*S-CHIP coverage-combination of Medicaid and separate-not VFC eligible*
Health Plan Type codes	
H01	*self pay*
H02	*Medicaid (may be called by state-specific name, e.g., Medi-Cal)*
H03	*third party or private insurance*
Insured Status	
IS00	*Some or all vaccine costs covered*
IS01	*Underinsured (no vaccine costs covered and not FQC/RHC)*
State Program codes *- state specific; use state 2-letter abbreviation plus a number for the value; see example below*	
e.g., NY01	*e.g., IHAP eligible*

HL7-defined Table 0076 - Message type [only selected values listed] (use in MSH-9, first component)

Value	Description
ACK	General acknowledgment
ADR	ADT response
ADT	ADT message
QCK	Query general acknowledgment
VXQ	Query for vaccination record
VXX	Vaccination query response with multiple PID matches
VXR	Vaccination query record response
VXU	Unsolicited vaccination record update
ORU	Unsolicited observation results

HL7-defined Table 0078 - Abnormal flags [only selected values listed] (use in OBX-8 for microbiology susceptibilities only)

Value	Description
L	Below low normal
H	Above high normal
LL	Below lower panic limits
HH	Above upper panic limits

Value	Description
N	Normal (applies to non-numeric results)
A	Abnormal (applies to non-numeric results)
AA	Very abnormal (applies to non-numeric units, analogous to panic limits for numeric units)

HL7-defined Table 0085 - Observation result status codes interpretation (use in OBX-11)

Value	Description
C	Record coming over is a correction and thus replaces a final result
D	Deletes the OBX record
F	Final results; Can only be changed with a corrected result
I	Specimen in lab; results pending
N	Not asked; used to affirmatively document that the observation identified in the OBX was not sought when the universal service ID in OBR-4 implies that it would be sought
O	Order detail description only (no result)
P	Preliminary results
R	Results entered - not verified
S	Partial results
X	Results cannot be obtained for this observation
U	Results status change to Final without retransmitting results already sent as ”preliminary”; e.g., radiology changes status from preliminary to final
W	Post original as wrong; e.g., transmitted for wrong patient

HL7-defined Table 0091 - Query priority (use in QRD-3)

Value	Description
D	Deferred
I	Immediate

HL7-defined Table 0102 - Delayed acknowledgment type (use in MSA-5)

Value	Description
D	Message received, stored for later processing
F	Acknowledgment after processing

HL7-defined Table 0103 - Processing ID (use in MSH-11)

Value	Description
D	Debugging
P	Production
T	Training

HL7-defined Table 0104 - Version ID (use in MSH-12)

Value	Description
2.0	Release 2.0 September 1988
2.0D	Demo 2.0 October 1988
2.1	Release 2.1 March 1990
2.2	Release 2.2 December 1994
2.3	Release 2.3 March 1997
2.3.1	Release 2.3.1 May 1999
2.4	Release 2.4 October 2000

HL7-defined Table 0105 - Source of comment (use in NTE-2)

Value	Description
L	Ancillary (filler) department is source of comment
P	Orderer (placer) is source of comment
O	Other system is source of comment

HL7-defined Table 0106 - Query/Response format code (use in QRD-2)

Value	Description
D	Response is in display format
R	Response is in record-oriented format
T	Response is in tabular format

HL7-defined Table 0107 - Deferred response type (use in QRD-5)

Value	Description
B	Before the date/time specified
L	Later than the date/time specified

HL7-defined Table 0108 - Query results level (use in QRD-12)

Value	Description
O	Order plus order status
R	Results without bulk text
S	Status only
T	Full results

HL7-defined Table 0126 - Quantity limited request (use in QRD-7)

Value	Description
CH	Characters
LI	Lines
PG	Pages
RD	Records
ZO	Locally defined

HL7-defined Table 0136 - Yes/No indicator (use in PID-24,30; PD1-12)

Value	Description
Y	Yes
N	No
"" <null>	*Not obtained (when used by immunization registries as defined in PD1-12)*

HL7-defined Table 0155 - Accept/Application acknowledgment conditions (use in MSH-15 and 16)

Value	Description
AL	Always
NE	Never
ER	Error/Reject conditions only
SU	Successful completion only

HL7-defined Table 0162 - Route of administration [only selected values listed] (use in RXR-1)

Value	Description
ID	Intradermal
IM	Intramuscular
IN	Intranasal
IV	Intravenous
PO	Oral
SC	Subcutaneous
TD	Transdermal

HL7-defined Table 0163 - Administrative Site [only selected values listed] (use in RXR-2)

Value	Description
LT	Left Thigh
LA	Left Arm
LD	Left Deltoid
LG	Left Gluteous Medius
LVL	Left Vastus Lateralis
LLFA	Left Lower Forearm
RA	Right Arm
RT	Right Thigh
RVL	Right Vastus Lateralis
RG	Right Gluteous Medius
RD	Right Deltoid
RLFA	Right Lower Forearm

User-defined Table 0188 - Operator ID (use in EVN-5) [locally-defined]

User-defined Table 0189 - Ethnic Group [These values are consistent with the OMB Notice of revised categories for collection of race and ethnicity data and with HL7's Version 2.4] (use in PID-22, NK1-28)

US ethnicity codes	HL7 Version 2.4 ethnicity codes	NIP's original temporary values	Description
2135-2	H	H	Hispanic or Latino
2186-5	N	NH	not Hispanic or Latino
	U		Unknown

HL7-defined Table 0190 - Address type (use in all XAD data types; including PID-11)

Value	Description
C	Current or Temporary
P	Permanent
M	Mailing
B	Firm/Business
O	Office
H	Home
N	Birth (nee)
F	Country of Origin
L	Legal Address
BDL	Birth delivery location [*use for birth facility*]
BR	Residence at birth [*use for residence at birth*]
RH	Registry home
BA	Bad address

HL7-defined Table 0200 - Name type (use in all XCN, XPN data types; including PID-5,6,9)

Value	Description
A	Alias Name
L	Legal Name
D	Display Name
M	Maiden Name
C	Adopted Name
B	Name at Birth
P	Name of Partner/Spouse
U	Unspecified

HL7-defined Table 0201 - Telecommunication use code (use in all XTN data types; including PID-13,14)

Value	Description
PRN	Primary Residence Number
ORN	Other Residence Number
WPN	Work Number
VHN	Vacation Home Number
ASN	Answering Service Number
EMR	Emergency Number
NET	Network (email) Address
BPN	Beeper Number

HL7-defined Table 0202 - Telecommunication equipment type (use in all XTN data types; including PID-13,14)

Value	Description
PH	Telephone
FX	Fax
MD	Modem
CP	Cellular Phone
BP	Beeper
Internet	Internet Address: Use Only if Telecommunication Use Code is NET
X.400	X.400 email address: Use Only if Telecommunication Use Code is NET

User-defined Table 0203 - Identifier type [values suggested by HL7; *with NIP-suggested additions*] (use in all CX, XCN type codes; including PID-2, 3,4,18,21, and RXA-10)

Value	Description
AM	American Express
AN	Account Number
ANON	*Anonymous Identifier*
BR	Birth Registry Number
DI	Diner's Club Card
DL	Driver's License Number
DN	Doctor Number
DS	Discover Card
EI	Employee Number
EN	Employer Number
FI	Facility Identifier
GI	Guarantor Internal Identifier
GN	Guarantor External Identifier
LN	License Number
LR	Local Registry ID

Value	Description
NA	Not Administered
PA	Partially Administered

HL7-defined Table 0323 - Action code (use in RXA-21)

Value	Description
A	Add
D	Delete
U	Update

HL7-defined Table 0354 - Message structure [only selected values listed] (use in MSH-9, third component)

Value	Events
ADT A01	A01, A04, A05, A08, A13, A14, A28, A31
ADT A02	A02, A21, A22, A23, A25, A26, A27, A29, A32, A33
ADT A30	A30, A34, A35, A36, A46, A47, A48, A49
VXQ V01	V01
VXR V03	V03
VXU V04	V04
VXX V02	V02
ORU R01	R01

HL7-defined Table 0356 - Alternate character set handling scheme (use in MSH-20)

Value	Description
ISO 2022-1994	This standard is titled “Information Technology - Character Code Structure and Extension Technique”. This standard specifies an escape sequence from basic one byte character set to specified other character set, and vice versa. The escape sequence explicitly specifies what alternate character set is to be evoked...This value is allowed only for HL7 v. 2.3.1.
<null>	This is the default, indicating that there is no character set switching occurring in this message.

HL7-defined Table 0357 - Message error status codes (use in ERR-1)

Status code	Status text	Description/Comment
Success		
0	Message accepted	Success. Optional, as the AA conveys this. Used for systems that must always return a status code.
Error status codes		
100	Segment sequence error	The message segments were not in the proper order or required segments are missing.
101	Required field missing	A required field is missing from the segment.
102	Data type error	The field contained data of the wrong data type, e.g., an NM field contained “FOO.”
103	Table value not found	A field of data type ID or IS was compared against the corresponding table, and no match was found.

Status code	Status text	Description/Comment
Rejection status codes		
200	Unsupported message type	The Message Type is not supported.
201	Unsupported event code	The Event Code is not supported.
202	Unsupported processing ID	The Processing ID is not supported.
203	Unsupported version ID	The Version ID is not supported.
204	Unknown key identifier	The ID of the patient, order, etc. was not found. Used for transactions *other* than additions, e.g., transfer of a non-existent patient.
205	Duplicate key identifier	The ID of the patient, order, etc. already exists. Used in response to addition transactions (Admit, New Order, etc.).
206	Application record locked	The transaction could not be performed at the application storage level, e.g., database locked.
207	Application internal error	A catchall for internal errors not explicitly covered by other codes.

User-defined Table 0360 - Degree [selected values suggested by HL7; *with NIP-suggested additions*] (use in all XPN data types, including PID-5,6,9)

Value	Description
PN	*Advanced Practice Nurse*
AA	Associate of Arts
AAS	Associate of Applied Science
AS	Associate of Science
BA	Bachelor of Arts
BN	Bachelor of Nursing
BS	Bachelor of Science
BSN	*Bachelor of Science in Nursing*
CER	Certificate
CANP	*Certified Adult Nurse Practitioner*
CMA	*Certified Medical Assistant*
CNP	*Certified Nurse Practitioner*
CNM	*Certified Nurse Midwife*
CAN	*Certified Nurse's Assistant*
CRN	*Certified Registered Nurse*
CNS	*Certified Nurse Specialist*
CPNP	*Certified Pediatric Nurse Practitioner*
DIP	Diploma
PHD	Doctor of Philosophy
MD	Doctor of Medicine
DO	Doctor of Osteopathy
EMT	*Emergency Medical Technician*
EMT-P	*Emergency Medical Technician – Paramedic*
FPNP	*Family Practice Nurse Practitioner*
HS	High School Graduate
JD	Juris Doctor
LPN	*Licensed Practical Nurse*
MA	Master of Arts
MBA	Master of Business Administration
MPH	*Master of Public Health*
MS	Master of Science
MSN	*Master of Science – Nursing*
MDA	*Medical Assistant*
MT	*Medical Technician*
NG	Non-Graduate
NP	*Nurse Practitioner*
PharmD	*Doctor of Pharmacy*
PA	*Physician Assistant*
PHN	*Public Health Nurse*
RMA	*Registered Medical Assistant*
RN	*Registered Nurse*
RPH	*Registered Pharmacist*
SEC	Secretarial Certificate
TS	Trade School Graduate

User-defined Table 0396 – Coding System [only selected values listed] [From HL7 Standard, Version 2.4] (Use in CE data types to denote the coding system used for coded values)

Value	Description
99zzz or L	Local general code (where z is an alphanumeric character)
ART	WHO Adverse Reaction Terms
C4	CPT-4
C5	CPT-5
CDCA	CDC Analyte Codes
CDCM	CDC Methods/Instruments Codes
CDS	CDC Surveillance
CPTM	CPT Modifier Code
CST	COSTART
CVX	CDC Vaccine Codes
E	EUCLIDES
E5	Euclides quantity codes
E6	Euclides Lab method codes
E7	Euclides Lab equipment codes
ENZC	Enzyme Codes
HB	HIBCC
HCPCS	HCFA Common Procedure Coding System
HHC	Home Health Care
HL7nnnn	HL7 Defined Codes where nnnn is the HL7 table number
HPC	HCFA Procedure Codes (HCPCS)
I10	ICD-10
I10P	ICD-10 Procedure Codes
I9	ICD9
I9C	ICD-9CM
ISOnnnn	ISO Defined Codes where nnnn is the ISO table number
LB	Local billing code
LN	Logical Observation Identifier Names and Codes (LOINC®)
MCD	Medicaid
MCR	Medicare
MEDR	Medical Dictionary for Drug Regulatory Affairs (MEDDRA)
MVX	CDC Vaccine Manufacturer Codes
NDC	National drug codes
NPI	National Provider Identifier
SNM	Systemized Nomenclature of Medicine (SNOMED®)
SNM3	SNOMED International
SNT	SNOMED topology codes (anatomic sites)
UML	Unified Medical Language
UPC	Universal Product Code
UPIN	UPIN
W1	WHO record # drug codes (6 digit)
W2	WHO record # drug codes (8 digit)
W4	WHO record # code with ASTM extension
WC	WHO ATC

HL7-defined Table 4000 - Name/address representation (use in all XPN, XAD data types) (PID-5,6,9,11)

Value	Description
I	Ideographic (e.g., Kanji)
A	Alphabetic (e.g., Default or some single-byte)
P	Phonetic (e.g., ASCII, Katakana, Hirigana, etc.)

NIP-defined NIP001 – Immunization information source (use in RXA-9)

Value	Description
00	*new immunization record*
01	*historical information - source unspecified*
02	*historical information - from other provider*
03	*historical information - from parent•s written record*
04	*historical information - from parent•s recall*
05	*historical information - from other registry*
06	*historical information - from birth certificate*
07	*historical information - from school record*
08	*historical information - from public agency*

NIP-defined NIP002 - Substance refusal reason (use in RXA-18)

Value	Description
00	*parental decision*
01	*religious exemption*
02	*other (must add text component of the CE field with description)*

NIP-defined NIP003 - Observation identifiers (use in OBX-3)

LOINC® Code	Description	Corres-ponding data type (indicate in OBX-2)	Corresponding observation value code table to use (value in OBX-5)
Dose Number for Combination Vaccines - Use in OBX-3 to indicate that OBX-5 value will be the dose number for a component of a combination vaccine. Used when dose numbers are different for the component antigens.			
~~*60000-7*~~ 30936-9	DTaP/DTP dose count in combination vaccine	(NM)	
~~*60001-5*~~ 30937-7	Hepatitis B dose count in combination vaccine	(NM)	
~~*60002-3*~~ 30938-5	Haemophilus influenzae type B (Hib) dose count in combination vaccine	(NM)	
~~*60003-1*~~ 30939-3	Measles dose count in combination vaccine	(NM)	
~~*60004-9*~~ 30940-1	MMR dose count in combination vaccine	(NM)	
~~*60005-6*~~ 30941-9	Mumps dose count in combination vaccine	(NM)	
~~*60006-4*~~ 30942-7	Rubella dose count in combination vaccine	(NM)	
~~*60007-2*~~ 30943-5	Varicella dose count in combination vaccine	(NM)	
Contraindications, Precautions, and Immunities			
~~*60010-6*~~ 30946-8	Vaccination contraindication/precaution effective date	(DT)	
~~*60008-0*~~ 30944-3	Vaccination temporary contraindication/precaution expiration date	(DT)	
~~*60009-8*~~ 30945-0	Vaccination contraindication/precaution	(CE)	*NIP-defined Table NIP004*
Vaccine Adverse Events Reporting (VAERS) - For additional information about VAERS, including a copy of the VAERS Form, see <www.cdc.gov/nip/vaers.htm> or <www.fda.gov/cber/vaers/vaers.htm>.			
~~*60011-4*~~ 30948-4	Vaccination adverse event (VAERS Form Item #7 - Description of adverse event(s) (symptoms, signs, time course, and treatment, if any)	(~~ST~~ TX)	
~~*60012-2*~~ 30949-2	Vaccination adverse event outcome (VAERS Form Item #8)	(CE)	*NIP-defined Table NIP005*

LOINC® Code	Description	Corres-ponding data type (indicate in OBX-2)	Corresponding observation value code table to use (value in OBX-5)
~~*60013-0*~~ 30950-0	*Number of days hospitalized due to vaccination adverse event (VAERS Form Item #8)*	*(NM)*	
~~*60014-8*~~ 30953-4	*Vaccination adverse event onset date and time (VAERS Form Item #11)*	*(TS)*	
Vaccine Information Statement (VIS) Dates			
29768-9	*Date Vaccine Information Statement Published*	*(TS)*	
29769-7	*Date Vaccine Information Statement Presented*	*(TS)*	
Vaccines Due Next			
30979-9	Vaccines Due Next	(CE)	HL70292
30980-7	30979-9 & 30980-7 – Date next vaccine due	(DT)	
30973-2	30979-9 & 30973-2 - Vaccine due next dose number	(NM)	
30981-5	30979-9 & 30981-5 – Earliest date to give	(DT)	
30982-3	30979-9 & 30982-3 – Reason applied by forecast logic to project this vaccine	(CE) or (ST)	

NIP-defined NIP004 - Contraindications, Precautions, and Immunities [explanations are from 1998 *Guide to Contraindications to Childhood Vaccinations*] (use in OBX-5 when OBX-3 is valued as LOINC® code 30945-0, Vaccination contraindication/precaution)

Value	Description	Explanation
01	*recipient condition - unspecified*	
02	*household condition - unspecified*	
03	*allergy to baker's yeast (anaphylactic)*	*contraindicates HBV*
04	*allergy to egg ingestion (anaphylactic)*	
05	*allergy to gelatin (anaphylactic)*	*extreme caution for MMR & VZV*
06	*allergy to neomycin (anaphylactic)*	*contraindicates IPV, MMR & VZV*
07	*allergy to streptomycin (anaphylactic)*	*contraindicates IPV*
08	*allergy to thimerosal (anaphylactic)*	
09	*allergy to previous dose of this vaccine or to any of its unlisted vaccine components (anaphylactic)*	
10	*anaphylactic (life-threatening) reaction to previous dose of this vaccine*	*contraindicates that vaccine*
11	*collapse or shock like state within 48 hours of previous dose of DTP/DTaP*	*precaution for DTP/DTaP*
12	*convulsions (fits, seizures) within 3 days of previous dose of DTP/DTaP*	*precaution for DTP/DTaP*
13	*persistent, inconsolable crying lasting ≥3 hours within 48 hours of previous dose of DTP/DTaP*	*precaution for DTP/DTaP*
14	*current diarrhea, moderate to severe*	*contraindicates vaccination temporarily (until illness resolves)*
15	*encephalopathy within 7 days of previous dose of DTP*	*contraindicates DTP/DTaP permanently*
16	*current fever with moderate-to-severe illness*	*contraindicates vaccination temporarily (until illness resolves)*
17	*fever of ≥40.5°C (105°F) within 48 hours of previous dose of DTP/DTaP*	*precaution for DTP/DTaP*

18	*Guillain-Barré syndrome (GBS) within 6 weeks of previous dose of DTP/DTaP*	*precaution for DTP/DTaP*
19	*HIV infection (in household contact)*	*contraindicates OPV*
20	*HIV infection (in recipient)*	*contraindicates OPV & VZV*
21	*current acute illness, moderate to severe (with or without fever) (e.g., diarrhea, otitis media, vomiting)*	*contraindicates vaccination temporarily (until illness resolves)*
22	*chronic illness (e.g., chronic gastrointestinal disease)*	*decide to vaccinate on an individual basis*
23	*Immune globulin (IG) administration, recent or simultaneous*	*precaution for MMR & VZV*

Value	Description	Explanation
24	*Immunity: diphtheria*	
25	*Immunity: Haemophilus influenzae type B (Hib)*	
26	*Immunity: hepatitis B*	
27	*Immunity: measles*	
28	*Immunity: mumps*	
29	*Immunity: pertussis*	
30	*Immunity: poliovirus*	
31	*Immunity: rubella*	
32	*Immunity: tetanus*	
33	*Immunity: varicella (chicken pox)*	
34	*immunodeficiency (family history)*	*contraindicates OPV & VZV unless immune status of recipient and other children in the family is documented*
35	*immunodeficiency (household contact)*	*contraindicates OPV*
36	*immunodeficiency (hematologic and solid tumors, congenital immunodeficiency, long-term immunosuppresive therapy, including steroids) (in recipient)*	*contraindicates OPV, MMR & VZV*
37	*neurologic disorders, underlying (including seizure disorders, cerebral palsy, and developmental delay)*	*precaution for DTP/DtaP*
38	*otitis media (ear infection) moderate to severe (with or without fever)*	*contraindicates vaccination temporarily (until illness resolves)*
39	*pregnancy (in recipient)*	
40	*thrombocytopenia*	*precaution for MMR*
41	*thrombocytopenic purpura (history)*	*precaution for MMR*
42	*other contraindication/precaution/immunity not listed (must add text component of the CE field with description)*	
43	*Unknown (valid only for historical immunizations)*	

NIP-defined NIP005 - Event consequence [adapted from HL7-defined Table 0240] (use in OBX-5 when OBX-3 is valued as ~~60012-2~~ 30949-2 - Vaccination adverse event outcome)

Value	Description
D	*Patient died*
L	*Life threatening illness*
E	*Required emergency room/doctor visit*
H	*Required hospitalization (indicate # of days in another OBX segment)*
P	*Resulted in prolongation of hospitalization*
J	*Resulted in permanent disability*
O	*None of the above*

~~**Previous Table NIP006 - Patient registry status**~~
User-defined Table 0441 Immunization registry status (use in PD1-~~14~~16) ~~[HL7 will assign table number in Version 2.3.2]~~ [HL7 assigned table number 0441 in Version 2.4]

Value	Description
A	Active
I	Inactive
L	Inactive-Lost to follow-up (cannot contact)
M	Inactive-Moved or gone elsewhere (transferred)
P	Inactive-Permanently inactive (do not re-activate or add new entries to this record)
O	Other
U	Unknown

HL7 Ref#	Data Type	Description	Notes
2.8.51	XPN - extended person name	Components: <family name (ST)>&<last name prefix (ST)>^<given name (ST)>^<middle initial or name (ST)>^<suffix (e.g., Jr. or III) (ST)>^<prefix (e.g., Dr.) (ST)>^<degree (e.g., MD) (IS)>^<name type code (ID)>^<name representation code (ID)> Components are defined as follows: (1-6) These components are defined as in the PN data type. (7) Name type code (ID). Refer to *HL7-defined Table 0200 - Name type* for valid values. (8) Name representation code (ID). Refer to *HL7- defined Table 4000 - Name/address representation* for valid values.	
2.8.52	XTN - extended telecommunication number	Format and Components: [NNN] [(999)]999-9999[X99999][B99999][C any text]^<telecommunication use code (ID)>^<telecommunication equipment type (ID)>^<email address (ST)>^<country code (NM)>^<area/city code (NM)>^<phone number (NM)>^<extension (NM)>^<any text (ST)> For codes, refer to *HL7-defined Table 0201 - Telecommunication use code* and *HL7-defined Table 0202 - Telecommunication equipment type.*	Note: To interoperate with CEN's Telecommunication data attribute group, HL7 allows use of the second component for email addresses. When used for an Internet address, the first component will be null; the second component will have the code NET, and the type of Internet address is specified with Internet or X.400 in the third component. When used for an Internet address, the first component of the XTN data type will be null. If the @-sign is being used as a subcomponent delimiter, the HL7 subcomponent escape sequence may be used (See Section 2.9 of the HL7 Standard).